

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Masahiro KOIKE, et al.

SERIAL NO: New Application

GAU:

FILED: Herewith

EXAMINER:

FOR: SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**

- Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.

Marvin J. Spivak

Registration No. 24,913

James D. Hamilton

Registration No. 28,421

Customer Number

22850

Tel. (703) 413-3000  
Fax. (703) 413-2220  
(OSMMN 05/03)

**LIST OF RELATED CASES**

<u>Docket Number</u>	<u>Serial or Patent Number</u>	<u>Filing or Issue Date</u>	<u>Inventor/Applicant</u>
246244US2 SRD	10/726,606	12/04/03	KOYAMA et al.

DOCKET NO.: 248684US2SRD

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Masahiro KOIKE, et al.

SERIAL NO: New Application

FILED: HEREWITH

FOR: SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING  
SEMICONDUCTOR DEVICE

**STATEMENT OF RELEVANCY**

**Reference AW on Form PTO 1449:**

This reference relates to HfSiON films. Their films contain Hf/(Hf+Si) of less than 47%. But, this reference doesn't mention about Hf-N bonds. Due to the low Hf concentrations in the films, their films don't include Hf-N bonds.

Our HfSiON films contain Hf/(Hf+Si) of more than 47% and include a large amount of Hf-N bonds which enhance the dielectric constant up to 24 in HfSiON with Hf/(Hf+Si) of 80% and N of 35%.

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 248684US2SRD		SERIAL NO. New Application	
LIST OF REFERENCES CITED BY APPLICANT		APPLICANT					
		Masahiro KOIKE, et al.		FILING DATE		GROUP	
		Herewith					
<b>U.S. PATENT DOCUMENTS</b>							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						
<b>FOREIGN PATENT DOCUMENTS</b>							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION		
					YES	NO	
	AO						
	AP						
	AQ						
	AR						
	AS						
	AT						
	AU						
	AV						
<b>OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)</b>							
AW		M. R. VISOKAY, et al., "APPLICATION OF HfSiON AS A GATE DIELECTRIC MATERIAL", Applied Physics Letters, Vol. 80, No. 17, April 29, 2002, pgs. 3183-3185					
AX							
AY							
AZ						<input type="checkbox"/> Additional References sheet(s) attached	
Examiner					Date Considered		
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							